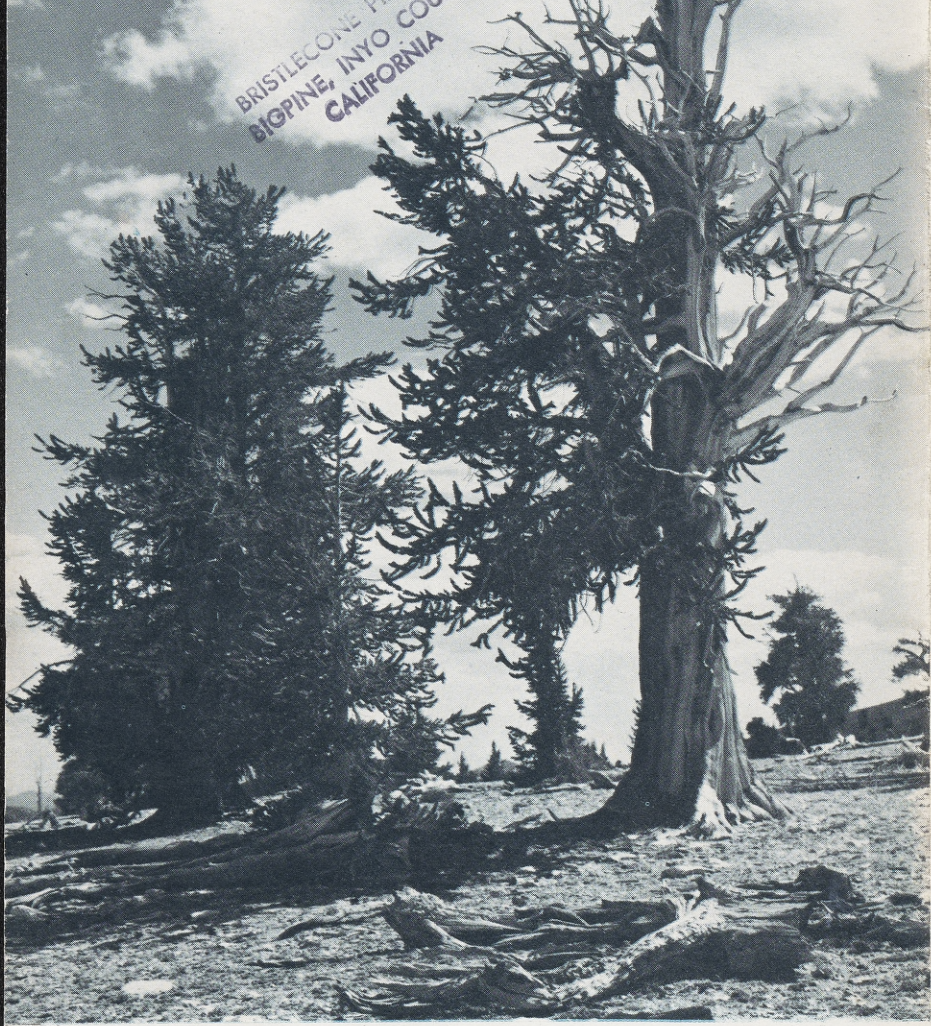


The BRISTLECONE PINE Recreation Area



INYO National Forest

California

Forest Service • 1965 • U.S. Department of Agriculture

HOW TO GET THERE

Be sure to have a full tank of gas, drinking water and, if you wish, a picnic lunch; there are no commercial facilities in the bristlecone area. From Highway 395, turn east on paved Westgard Pass Road about one-half mile north of the town of Big Pine, California. After driving approximately 13 miles you will see the sign of the Ancient Bristlecone Pine Forest where you turn north onto the White Mountain Road. This road is paved as far as the Schulman Grove of bristlecones—about ten miles from the turnoff. The Patriarch area of bristlecones is 12 miles farther along the White Mountain Road. Near the Patriarch Grove, the road becomes rougher and steeper so drive carefully. Avoid side roads and short cuts.

The area is normally open from June 1 to October 30, but the weather is best in July or August.

What You'll See En Route

Shortly after leaving Highway 395, which runs along Owens Valley, you'll cross the Owens River. Most of the water in this river comes from Inyo National Forest land on each side of the Owens Valley. Several miles south of this point, the river is diverted into an aqueduct system and carried to Los Angeles where it supplies a large portion of the drinking water.

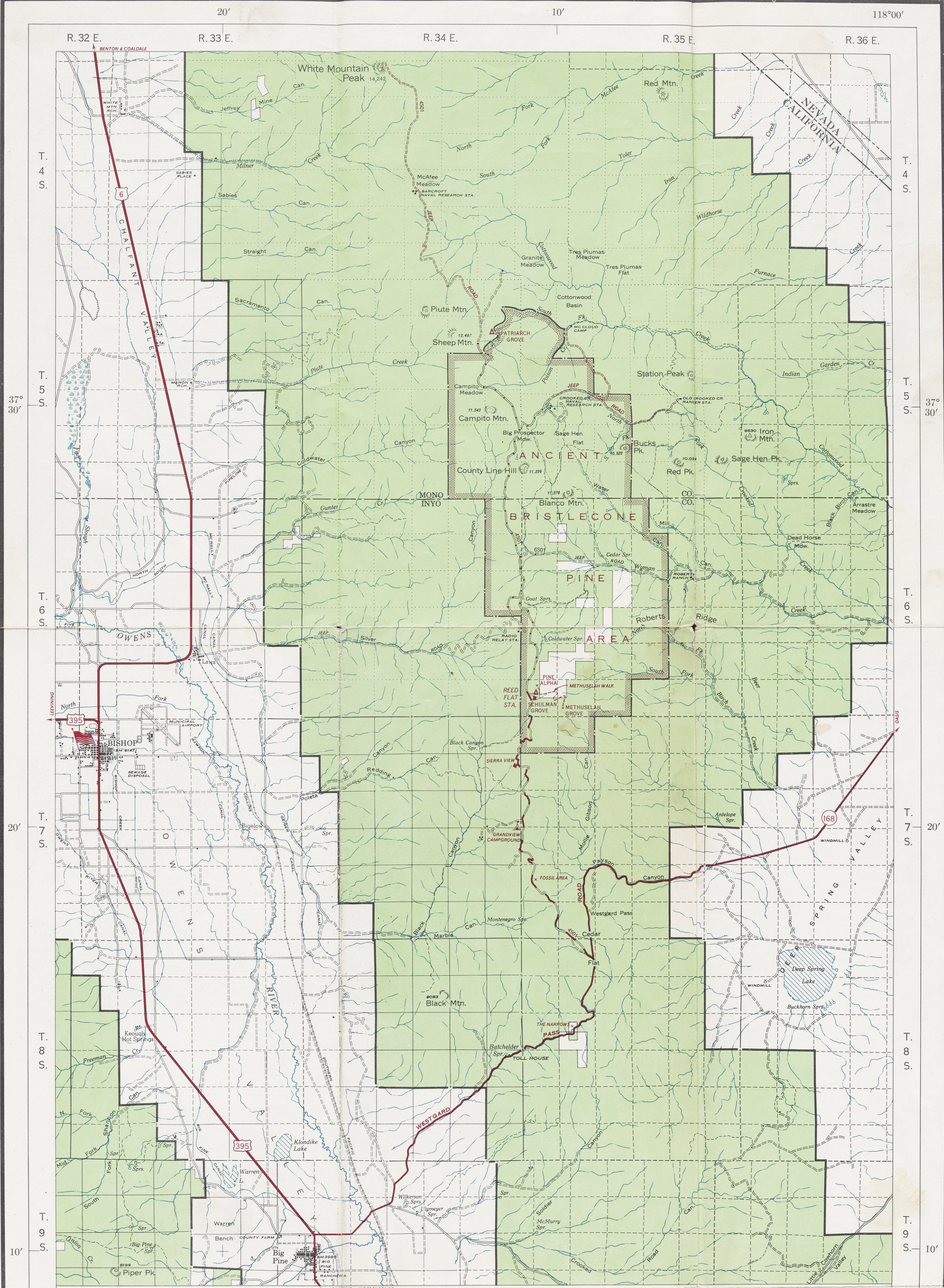
Soon after crossing the river, you will notice—off to the left—huge metal discs supported by steel frameworks. These are the 90-foot parabolic radio telescope reflectors of the California Institute of Technology. They gather radio signals emitted from celestial bodies and focus them for reception. Constructed in 1958, this equipment led to the discovery of more "radio" stars during its first two years of operation than all other radio observatories combined. With these telescopes, scientists have located stars which are six billion light years away from the earth.

The 13 miles of State highway from Big Pine to Cedar Flat follows the old Midlands Trail. Miners used this old trail during the 1860's to reach their mining claims in the Cedar Flats area. In 1873, the road was improved and opened as the Deep Springs Valley Toll Road. The toll house still stands at Batchelder Spring—the only source of water on this trip. This road, incidentally, is named for A. L. Westgard who passed through here in 1916 looking for transcontinental routes.

Some 500 million years ago, a shallow sea covered this area. Sediments, deposited under this sea, were gradually formed into rock over the ages. This type of rock is six miles deep in some nearby areas. Ancient mud cracks and wave ripple marks can be seen in the rocks—especially in the narrow canyon above the toll house.

Above the toll house, you enter a flat area where there is a heavy stand of Utah juniper, and also single-leaf pinyon pine trees. Years ago, Piute Indians from the valley spent much time here each fall gathering pine nuts—one of their staple foods. There is an abundance of black obsidian chips here. Obsidian, which is a volcanic glass not native to this area, was fashioned by the Indians into knives and arrowheads.

After turning onto the White Mountain Road, you pass through more forests of pinyon and juniper trees. Three miles beyond the turn is a "fossil" area. Here you can find specimens of Archaeocythids (ancient coral-like marine animals) imbedded in the limestone. You may take a souvenir with you, but collecting for commercial purposes is not allowed.



U.S. DEPARTMENT OF AGRICULTURE - FOREST SERVICE

ANCIENT BRISTLECONE PINE AREA INYO NATIONAL FOREST

CALIFORNIA

1965

Scale 0 1 2 3 4 5 6 Miles

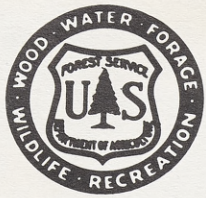
LEGEND

- U. S. Highway
- Main Road — (25 Mi. per hr. & over)
- Secondary Road — (15 to 25 Mi. per hr.)
- Poor Road — (Under 15 Mi. per hr.)
- Forest Road Number

- Trail
- Good Road
- Poor Road
- Private Land



- Supervisor's Headquarters
- Forest Service Sta. (Seasonal)
- Picnic Area
- National Forest Land



'Land of the Ancient Bristlecone Pines'

Grandview Campground is approximately three miles beyond the fossil area. There is no water available here, so be sure to bring some if you intend to camp.

Stop at the Sierra Viewpoint for an inspiring view over the valley. If the visibility is good, you can see (to the right beyond Big Pine) the Palisades which rise sharply for 10,000 feet from the valley floor and crest at elevations over 14,000 feet. Also you may be able to see the southernmost glacier in North America—the Palisade Glacier.



According to geologic data, the Sierras were up-lifted to their present height some two million years ago. The valley floor subsided several thousand feet, and about 1,000 feet of sediment have washed down from the mountains over the years.

Wildlife in this semi-arid area is not very abundant. However, you will see golden mantled ground squirrels and chipmunks, and you may see deer, badgers, porcupines, coyotes, marmots, and skunks. If you are lucky, you may glimpse a mountain sheep or mountain lion. Wild horses (mustangs) are found at the north end of the mountain range at lower elevations.

There are two species of pine trees which prevail here: the bristlecone pine and the limber pine. Limber pine needles are in short tufts at the ends of the branches, while the needles of the bristlecone pine run back along the branch for a foot or more. In summer, the cones of limber pine are green without barbed scales, while the bristlecone pine has a deep purple cone with sharp bristles on each scale. Driving toward Schulman Grove, you'll see more and more bristlecone pines until, at Schulman Grove, the stand is almost pure.

The Amazing Bristlecones!

High on the wind-swept, rock-strewn slopes of the White Mountains, northeast of Bishop, California, are the oldest known living things in the world — an extensive stand of trees called *Pinus aristata*—the amazing bristlecone pines.

The bristlecone pine is not a tall and stately thing of beauty, nor do its leaves glisten and blow in the summer winds. The trees are short and squat, most of them reaching no more than twenty-five feet in height. And they don't have leaves—but instead short needles tufted to stubby branches giving them the appearance of fox tails.

But here, in this otherwise nearly barren area, some of these unique trees have endured the hardships of mountain winters and summers for over 4,000 years. It is hard to visualize this mighty span of time. Some of these very trees were growing when the great pyramids of Egypt were being built. They had been growing many years when Moses received the Ten Commandments, and they were several hundred years old when the Roman Empire ruled over the known world.

Most of the trees have been beautifully sculptured over the centuries by elements of nature: fire, windblown sand, and ice particles. For this reason they have been referred to as "living driftwood." Many of the trees are partly dead—and it is thought that herein lies the secret to their survival over the ages: Only a small vein of living tissue is needed to keep the tree alive. Part of the tree can die, so that the living portion remains in balance with the precipitation or other variations of weather and climate in this bleak setting.

The trees have grown slowly, often less than one inch in diameter every 100 years. Yet they cling to life so fiercely that some wind-blown specimens have grown parallel to the earth rather than give in to the forces of nature. It's also significant that the cones of many of the oldest trees still produce fertile seeds.

The bristlecone pines grow on a dolomitic (limestone) soil which is alkaline and not suitable for most other trees. Here the precipitation is only some ten inches a year, and the soil is shallow and rocky. Erosion has bared a large proportion of the trees' root system.

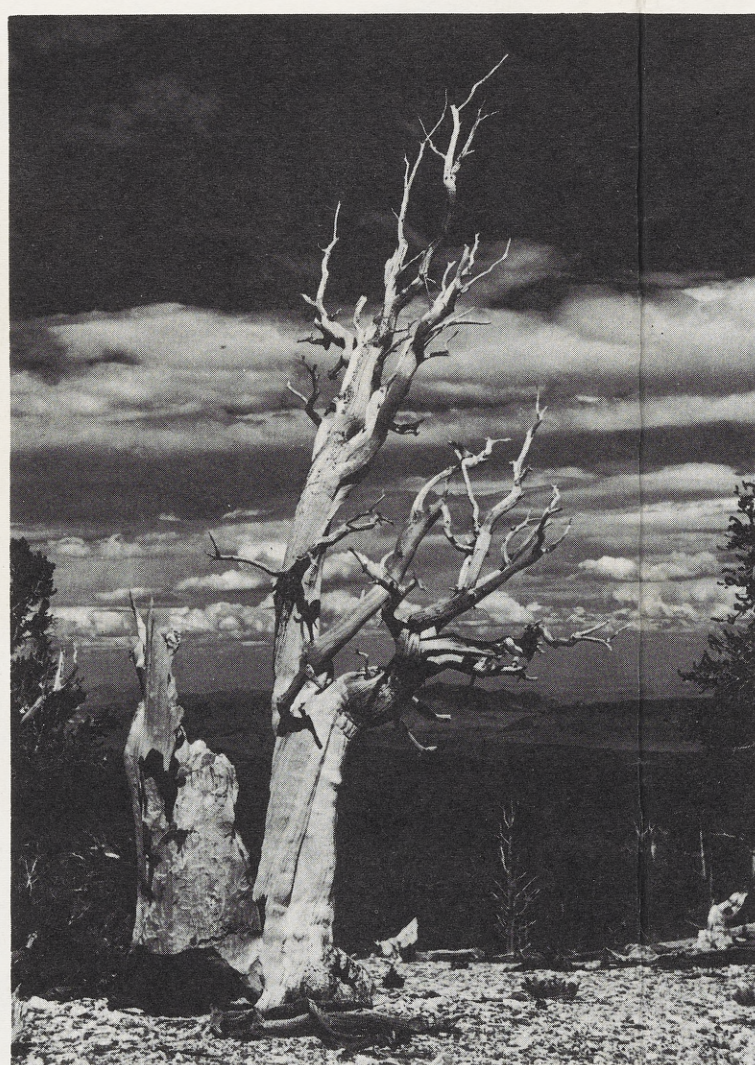
Their extreme age is significant because these trees have recorded climatic fluctuations over the past 40 centuries. (Weather Bureau records cover only about 100 years). The trees show seasonal and yearly fluctuations in rainfall as well as short range wet and dry cycles. The pattern of long range trends is also locked within the growth rings of these trees. Such a detailed knowledge of long term trends in rainfall can be very important, for example, in planning California's multi-billion dollar water development projects. The University of California, the University of California at Los Angeles, the University of Pennsylvania, Harvard University, and the University of Arizona conduct active research programs here in the study of genetics, plant physiology, ecology, and dendrochronology.

Discovery of the Bristlecones

In the 1940's, Forest Service personnel noted that many of the bristlecone pines seemed to be extremely old. In 1948, a section of one of the trees was examined



Beauty in form on a wild, high slope of the White Mountains



The ghost of an ancient bristlecone pine, sculptured by the forces of nature



A Forest Ranger examines a "young" bristlecone pine.



The "Patriarch," largest known bristlecone pine



by Forest Service experts who determined the age to be 940 years. In 1953, a Natural Area was established to protect these trees. Three years later, the late Dr. Edmund Schulman of the University of Arizona found some of the trees to be over 4,000 years old, and a year later tree "Methuselah" was dated at 4,600 years of age.

In 1958, 28,000 acres were set aside as a Botanical Area administered for "scientific study and public enjoyment." The trees are protected, but other uses continue that do not threaten the trees or the aesthetics of the area. For instance, cattle grazing in the sagebrush and meadow areas, which dates back over 80 years, does not harm the bristlecone pines, so continues as an important part of the Nation's beef production. Hunting, fishing, recreation, and watershed management are also continued.

Schulman Grove

Schulman Grove is the area of the oldest trees and is the center of activity. You will find a small picnic ground here with tables, toilets, and an outdoor information center with a display case. Here golden-mantled ground squirrels often beg to share a picnic lunch.

From the Schulman Grove (elevation 10,100 feet) a one-half mile footpath takes you to Pine Alpha, a 4,300 year-old tree. This tree derives its name from the first letter of the Greek alphabet because it was the first tree dated older than 4,000 years. Its age was determined by extracting long, thin cores of wood with a Swedish increment borer. In this way, the tree's annual growth rings could be counted without destroying the tree. This ancient tree, while nearly four feet across, has only a 10 inch strip of bark; this means that less than 10 percent of its circumference still has living tissue. Yet it still produces seeds from which new trees can grow.

Since this area is protected, the removal of living or dead plants is prohibited. Do not ask the Ranger for permission to take a sample of bristlecone pine. This cannot be granted except for scientific study by accredited institutions, and then only with a written permit from the District Ranger in Bishop.

Along the trail to Pine Alpha are numerous old stumps and gnarled trees of photographic interest and immense scientific value. Informational signs are located along the trail.

A two-mile footpath leads to Methuselah Walk from Schulman Grove. Methuselah is the oldest living tree known to exist anywhere in the world. The trip takes a day in itself. If you want to explore this area, please contact the Forest Ranger at Schulman Grove.

The Patriarch Area

Along the twelve miles to the Patriarch area, you will pass through a land completely different from any other through which you can drive in California. The vast open spaces and long range of colorful mountains are very impressive and could be a scene on the surface of the moon.

During August you'll find flowers such as red Indian paint brush, blue lupine, and white desert sweet in full bloom, along with many others of the 500 or more plant species of the White Mountains.

As you drive toward the Patriarch area, you will pass the University of California's Crooked Creek high elevation research laboratory. Here scientists are experimenting to determine the effects of high altitude on plants, animals, and on man. Because of the carefully controlled conditions needed for these experiments, visitors cannot be permitted here.

The Patriarch area is a must for the photographer, and is at its best between noon and 4 p.m. Here, at 11,000 feet in elevation, the terrain is even more rugged and barren than at Schulman Grove, and the trees are larger and more grotesque. Be sure to follow the footpath to the Patriarch; this multiple-stemmed tree has a circumference of 36 feet 8 inches, and is recognized as the world's largest bristlecone pine.



If you wish, drive another two miles beyond the Patriarch area where the road breaks over the shoulder of Sheep Mountain; you'll be near the 12,000 foot mark, and will command a view of White Mountain Peak (14,242 feet), and an unusual view of the high country of the White Mountains.

You may wonder how White Mountain Peak got its name, since it is reddish-brown in color. Before the turn of the century, Mount Montgomery, a peak at the north end of this mountain range, was called White Mountain Peak because of its conspicuous white granite cliffs. Later, through popular usage, it surrendered its name to this tallest peak in the range which had been called Mount Olmsted.